

MR23i



**HIGH SPEED REFRIGERATED
MULTIFUNCTION
CENTRIFUGE**



**With AUTO-LOCK
and VIDEOset**

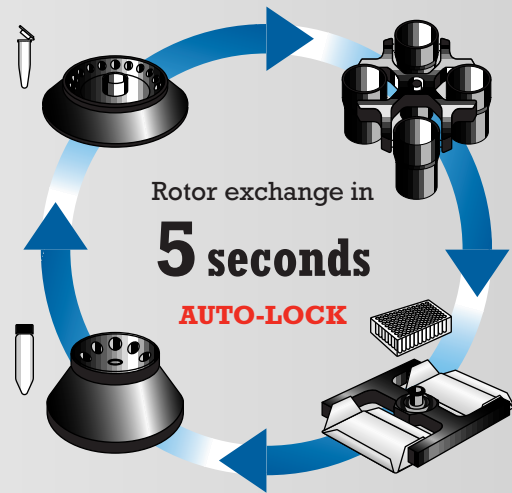
A CENTRIFUGE FOR ALL APPLICATIONS !

CLINICAL BIOLOGY, RESEARCH, INDUSTRY

The MR23*i* accepts all tubes from 0.2 ml to 200 ml for applications at **low and high speed**.

Change the 28 x 1.5 ml rotor for **DNA fraction separation** for the 48 x 5 ml rotor for **blood separation**. Swap in the swing-out rotor for **6 microplates** in record time (< 5 seconds !) thanks to the unique **AUTO-LOCK** system.

Especially compact, silent and easy to program, the MR23*i* is perfect for daily use.



- A choice of 12 rotors - 9 angle rotors, 2 swing-out rotors and a drum rotor : 28 x 1.5 ml - 48 x 5 ml - 8 x 50 ml - 6 x 50/15 ml conical - 4 x 200 ml - 6 microplates / 2 deepwell blocks.
- **AUTO-LOCK** = rapid rotor exchange (under 5 seconds).
- **VIDEOset** graphic control system for instant understanding of operation.
- Lifetime guarantee of reproducibility from run to run via the High Reproducibility Factor (integrator).
- 32 memories with individual password protection for all your applications.
- Exceptionally quiet (57 dBA at 23,000 rpm) maintenance-free induction motor.
- Biohazard protection guaranteed (C.A.M.R. Porton Down certified sealed rotors).

SAMPLE PROTECTION

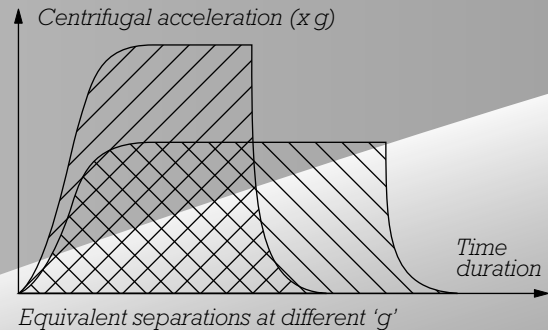
Pre-cool cycle (4°C / 2000 r.p.m. / 20 minutes) automatically prepares the chamber and rotor.

Efficient low temperature control (holds 4°C at full speed, whatever the rotor).

Precise parameter control (speed, time, acceleration and braking rates...) for a better separation.

Integration system : The total force applied to the sample provides guaranteed reproducibility from run to run with the

High Reproducibility Factor (whatever the rotor, the load, the mains power supply, etc...)



OPERATOR AND ENVIRONMENTAL PROTECTION

- Secure lid locking, imbalance detection and shutdown, armour plated bowl..., the MR23i satisfies the CE directives and the EN 61010-1 standard.
- Biological containment of the samples is assured by sealed rotors and buckets

certified by C.A.M.R. Porton Down (Harper test - EN 61010-2-020 standard).

- The MR23i is safe for the ozone layer. Refrigerant and insulation are non-flammable and are CFC and HCFC-free).



Large range of rotors and accessories

ROTORS & ACCESSORIES

Catalogue number	Rotor	Description	Capacity	Tube dim. mm	Rad. mm	Max speed rp.m.	Max RCF (x g)	Angle deg.
11174703	DRM 6.14	Drum rotor	6 racks	-	72	14300	16461	90
11174561		1 rack	10 x 1.5-2ml	Ø11	-	-	-	90
11174573		1 rack	20 x 500-800 µl	Ø 8	-	-	-	90
11174574		1 rack	20 x 700 µl	Ø 6	-	-	-	90
11174563		1 rack	21 x 600 µl	Ø 6	-	-	-	90
11174562		1 rack	32 x 250-400 µl	Ø 6	-	-	-	90
11174704	AM 2.23	Unsealed angle rotor	12 x 1.5 - 2 ml	11 x 39	62	23000	36668	45
11174705	AM 2.21	Sealed angle rotor	12 x 1.5 - 2 ml	11 x 39	62	21500	32041	45
11174728	AM 2.18	Sealed angle rotor	24 x 1.5 - 2 ml	11 x 39	84	18750	33016	45
11174706	AM 2.19	Sealable angle rotor	28 x 1.5 - 2 ml	11 x 39	73	19200 ¹	30086 ¹	45
					63	19200 ²	25965 ²	45
11174722		Trans. sealing lid	-	-	-	-	-	-
41174928		Set of 20 adaptors	1 x 500/800 µl	Ø 8	-	-	-	45
11174631		Set of 20 adaptors	1 x 200 µl PCR	Ø 6.5	-	-	-	45
41174938		Set of 20 adaptors	1 x 250/400/700 µl	Ø 6	-	-	-	45
11174707	AM 10.17	Sealable angle rotor	10 x 10 ml	16 x 80	85	16600	26186	40
11174722		Trans. sealing lid	-	-	-	-	-	-
11174607		Set of 10 adaptors	1 x 6 ml	13 x 100	80	16600	24646	40
11174603		Set of 10 adaptors	1 x 1.5-2 ml	11 x 39	64	16600	19717	40
11174708	AM 38.15	Sealable angle rotor	8 x 38 ml	25.5 x 92	89	15300	23292	30
11174722		Trans. sealing lid	-	-	-	-	-	-
11174611		Set of 8 adaptors	1 x 16 ml	18 x 100	86	15300	22507	30
11174601		Set of 8 adaptors	1 x 13 ml	17 x 85	84	15300	21984	30
11174602		Set of 8 adaptors	1 x 10 ml	16 x 80	80	15300	20937	30
11174610		Set of 8 adaptors	1 x 5 ml	12.5 x 75	74	15300	19367	30
11174732	AM 50C.13	Angle rotor³ + con/round adaptor	6 x 50 ml con.	29.5 x 118	112	13000	21160	40
11174606		Set of 4 adaptors	1 x 15 ml con.	17 x 122	112	13000	21160	40
11177378		Set of 4 adaptors	1 x 10 ml	16 x 80	91	13000	17194	40
11174709	AM 50.14	Angle rotor	8 x 50 ml	29 x 104	97	14000	21255	28
11174599		Set of 8 adaptors	1 x 30-38 ml	25.5 x 92	88	14000	19283	28
57312031		Set of 8 adaptors	1 x 30 ml COREX	24 x 106	93	14000	20379	28
57312026		Set of 8 adaptors	1 x 25 ml COREX	24 x 102	93	14000	20379	28
57312016		Set of 8 adaptors	1 x 15 ml COREX 16 ml OAKRIDGE	17.5 x 102	91	14000	19941	28
11174604		Set of 8 adaptors	1 x 15 ml con.	17 x 122	88	14000	19283	28
85240287		Set of 8 adaptors	1 x 13 ml	17 x 104	86	14000	18845	28
11174612		Set of 8 adaptors	1 x 12 ml	17 x 103	92	14000	20160	28
11174600		Set of 8 adaptors	1 x 10 ml	16 x 80	83	14000	18188	28
11174710	AM 100.13	Angle rotor	6 x 100 ml	38 x 101	98	13000	18516	28
11174713		Set of 6 adaptors	1 x 50 ml	29 x 103	93	13000	17572	28
11174714		Set of 6 adaptors	1 x 50 ml con.	30 x 116	93	13000	17572	28
11174724		Set of 6 adaptors	1 x 30 ml COREX	24.5 x 106	93	13000	17572	28
11174725		Set of 6 adaptors	1 x 25 ml COREX	24 x 104	93	13000	17572	28
11174726		Set of 6 adaptors	1 x 15 ml COREX 16 ml OAKRIDGE	18.5 x 106	92	13000	17383	28
11174715		Set of 6 adaptors	1 x 30-38 ml	25.5 x 92	88	13000	16627	28
11174716		Set of 6 adaptors	1 x 15 ml con.	17 x 122	93	13000	17572	28
11174717		Set of 6 adaptors	2 x 10 ml	16 x 80	83	13000	15682	28
11174718		Set of 6 adaptors	4 x 1.5-2 ml	11 x 39	79	13000	14926	28
11174711	SWM 180.5	Swing-out rotor	4 x 200 ml		142	4400	3074	90
11174720		Set of 4 standard buckets	200 ml	Ø 57	142	4400	3074	90
11174721		Set of 4 sealed buckets	200 ml	Ø 57	142	4400	3074	90
41193271		6 PP bottles with cap	200 ml flat bottom ⁴	56.5 x 112	142	4400	3074	90
11174181		Set of 4 inserts	1 x 100 ml	Ø 45	142	4400	3074	90
11174501		Set of 4 inserts	1 x 50 ml	Ø 32.5	142	4400	3074	90
11174528		Set of 4 inserts	1 x 50 ml con. ± skirt ⁴	30 x 116	142	4400	3074	90
11174526		Set of 4 inserts	1 x 25 ml glass Univ or 1 x 50 ml con. with skirt ⁴	29 x 85 30 x 116	142 142	4400 4400	3074 3074	90 90
11174527		Set of 4 inserts	1 x 25 ml plastic Univ.	25 x 85	142	4400	3074	90
11174502		Set of 4 inserts	3 x 20 ml	Ø 22	142	4400	3074	90
11174723		Set of 4 inserts	1 x 15 ml con. ⁴	17 x 122	142	4400	3074	90
11174183		Set of 4 inserts	7 x 15 ml	Ø 17	142	4400	3074	90
11174509		Set of 4 inserts	3 x 12 ml	Ø 17.5	142	4400	3074	90
11174503		Set of 4 inserts	5 x 10 ml	Ø 16	142	4400	3074	90
11174534		Set of 4 inserts	5 x Z5/Z10, 5/10 ml	17x60/105	142	4400	3074	90
11174533		Set of 4 inserts	5 x Z5, 5 ml	17 x 60	142	4400	3074	90
11174504		Set of 4 inserts	5 x 5-7 ml	Ø 13	142	4400	3074	90
11174505		Set of 4 inserts	9 x 5-6 ml	Ø 13.5	142	4400	3074	90
11174577		Set of 4 inserts	12 x 5 ml open	Ø 12.5	142	4400	3074	90
11174506		Set of 4 inserts	12 x 3-5 ml	Ø 12	142	4400	3074	90
11174508		Set of 4 inserts	6 x 1.5-2 ml	11 x 39	142	4400	3074	90
11174210		Set of 4 sealed carriers	1 x 50 ml con.	30 x 116	142	4400	3074	90
11174209		Set of 4 sealed carriers	1 x 15 ml con.	17 x 122	142	4400	3074	90
11174606		Set of 4 adaptors	15ml con. in 11174210	17 x 122	142	4400	3074	90
11174712	MTM 6.4	Swing-out rotor	6 x microplates or 2 x blocks	-	115	4500	2604	90
11174207		Rubber cushion for flexible microtitre plates		-	115	4500	2604	90

1 - Outer ring 2 - Inner ring 3 - Accepts adaptors of AM50.14 when con/round adaptor is fitted 4 - In open buckets only

CONVENIENT & EASY TO USE

- The unique **VIDEOset** graphic user interface is easy to use. It incorporates images, drawings and animation to simplify the user-machine dialogue.

Recall and start a run with **only 2 key strokes!**

- Set and live run parameters are displayed simultaneously.

- A minimum of keys for a maximum of functions.

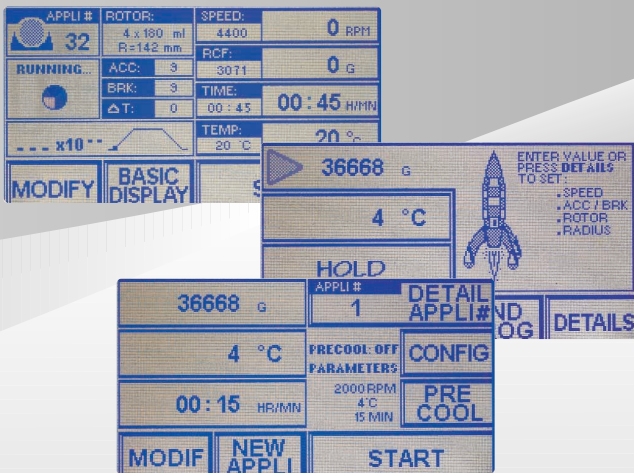
START To start the run.

MODIF To modify a parameter.

NEW APPLI To create a program.

SAVE APPLI To save a program.

DETAILS For specific requirements (programming the radius, true 'g' force applied to the sample, total separating force [integral], compensation for original sample temperature).



ECONOMICAL : SAVES TIME AND SPACE

- **AUTO-LOCK** : Fitting and removal without the use of locking tools !

Just 5 seconds to exchange the rotor !

- The choice of 12 rotors and over 50 adaptors makes the MR23i compatible with all applications, both low speed or high speed.
- The Multifunction MR23i combines the characteristics of several machines for the price and the bench space of one (H x W x D : 360 x 585 x 635 mm !!).



AUTO-LOCK : Instant rotor exchange

SPECIFICATIONS

Max Speed :	Swing-out : 4 400 rpm	Angle : 23 000 rpm
Max RCF :	Swing-out : 3 074 x g	Angle : 36 668 x g
Max Capacity :	Swing-out : 4 x 200 ml	Angle : 6 x 100 ml
Controller :	Microprocessor	
Display :	VIDEOset software on graphic screen 240 x 128 pixels	
Memory :	32 programs	
Program protection :	Individual password	
Speed :	Range	500 to 23 000 rpm
	Step	10 rpm
	Accuracy	± 10 rpm (low speed), ± 20 rpm (high speed)
Integrator :	Range	100 to 281 x 10 ¹² m. rd ² .s
	Step	1 m. rd ² .s
	Accuracy	± 1 m. rd ² .s
Timer :	Range	0 to 99 h 59 min + position continue
	Step	1 min
	Accuracy	less than 1%
RCF :	Range	20 to 36 668 x g
	Step	1 x g at low speed, 3 x g at max. speed
	Accuracy	± 1 x g at low speed, ± 3 x g at max. speed
Acceleration / Braking :	10 / 10 rates	
Temperature :	Range	-8°C to +40°C
	Step	1°C
Typical temperature performance :	-5°C at 4 400 rpm, 3 074 x g (4 x 200 ml swing-out) 20°C ambient 1°C at 22 400 rpm, 34 780 x g (12 x 1.5 ml angle) 20°C ambient	
Dimensions (H x W x D) :	360 x 585 x 635 mm	
Packed :	570 x 720 x 790 mm	
Weight net/packed :	85 kg / 100 kg	
Max power :	1 300 VA	
Instant rotor exchange system :	AUTO-LOCK	



CATALOGUE NUMBERS

230 V - 50 Hz :	11174729
120 V - 60 Hz :	11174730
230 V - 60 Hz :	11174731

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CE Comply with current CE directives



The quality of the product
The quality of customer service
The quality of the maintenance

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